



# SUBSTITUTE SPECIFICATION

## DESCRIPTION FASTENER

### TECHNICAL FIELD

This invention relates to a fastener for being fitted to a fastening member such as a bolt, nut and screw to be secured to a mounting base made of wood, metal or the like.

More particularly, the present invention relates to an improvement in the fastener fitted to the fastening member, which rotates to be fastened to the mounting base while continually applying a tightening torque to the fastening member so as to regulate and maintain the tightly fastened state of the fastening member.

### BACKGROUND ART

Conventionally, fastening of a number of fastening members to a mounting base generally requires work to make the fastening members equal in clamping force so as to ensure required effective fastening strength. However, it has been difficult for any skilled worker to equalize the tightening torques to be applied to the fastening members even by using an automatic clamping device controlled numerically. Hence, adjustments have been made while checking the fixed state of the fastening member after fitting the fastening member to the mounting base in the existing circumstances.

Besides, the fastening member fitted to the mounting base gets inconveniently loose due to change in subsequent mounting conditions (deterioration, fatigue, desiccation, etc.) of the fastening member and the mounting base.

Under the circumstances, a need has been felt for a high-performance fastener capable of clamping numbers of fastening members with an equal clamping force and preventing slack of the fastening member for a long period of time.

There has been heretofore known a fastener to fulfill the need as disclosed in International Patent Publication No. WO99/40331.

The conventional fastener is fitted to a fastening member tightly screwed onto a mounting base while applying continually a tightening torque to the fastening member. The conventional fastener comprises a spiral spring turbinated in the contracted state to accumulate the tightening torque, which has one end serving as an engaging end in engagement with the fastening member and the other end serving as a fixing end fixed onto the mounting base, and a detachable stopper fitted to the torsion coil spring, which torsion coil spring releases the tightening torque accumulated thereby when removing the

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US 7/30/07*